UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA

HOOPA VALLEY TRIBE, Plaintiff, v. UNITED STATES BUREAU OF RECLAMATION; DEBRA ANNE HAALAND, in her official capacity as Secretary of the Interior; MARIA CAMILLE CALIMLIM TOUTON, in her official capacity as Commissioner of the United States Bureau of Reclamation; ERNEST A. CONANT, in his official capacity as U.S. Bureau of Reclamation California-Great Basin Regional Director; and UNITED STATES DEPARTMENT OF THE INTERIOR, Defendants.	Case No. 1:20–cv–01814–JLT-EPG

DECLARATION OF SETH NAMAN

I, Seth Naman, declare as follows:

1. I am currently a Fish Biologist with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service ("NMFS"). I have held this position since January of 2008. I hold a Bachelor of Science degree from Oregon State University in Fisheries and Wildlife, and a Master of Science degree from California State Polytechnic University, Humboldt in Fisheries Biology. The publications I reference in my declaration are fully cited in the attached "References" section.

2. I represent NMFS on the technical workgroups of the Trinity River Restoration Program ("Restoration Program"), which provide science-based recommendations to the Restoration Program and the Trinity Management Council. I have led both the Fish Work Group and the Flow Work Group for the Restoration Program, most recently as the Flow Work Group Coordinator from 2020 to 2022. I have conducted several analyses and provided numerous presentations to the Trinity Management Council on dam releases and flows in the Trinity Basin. I also help implement the Endangered Species Act ("ESA") for NMFS by providing analyses, guidance, and recommendations to the Bureau of Reclamation ("Reclamation") for how to reduce adverse effects of the Trinity

River Division of the Central Valley Project on ESA-listed species such as Southern Oregon/Northern California Coast coho salmon.

3. As the former Flow Work Group Coordinator for the Restoration Program, I am familiar with the 1999 Trinity River Environmental Impact Statement ("EIS") and the 2000 Record of Decision ("ROD") and worked closely on the development of the Winter Flow Project. I believe the Winter Flow Project will be wholly beneficial to tribal trust resources, public trust resources, and the ecological integrity of the Trinity River.

4. The Winter Flow Project includes a suite of actions that shift some of the water that would have been released in the spring into the winter months. The recommended original Implementation Plan for the Variable Flow Component of the 2000 ROD, as outlined in Appendix C of the EIS, skewed a much larger proportion of the total water released in the year to the spring than occurs naturally. Before the Trinity River Division dams were built, approximately 50 percent of the total annual water volume in the river at Lewiston would have flowed prior to April 1. Annual flow regimes implemented under the 2000 ROD over the past 22 years have resulted in approximately 20 percent of the naturally occurring annual water year volume flowing into the river before April 1. The entire Winter Flow Project as proposed helps ameliorate identified issues associated with following the original exemplar flow regime outlined by the 2000 ROD by more closely replicating natural river conditions during the winter. The 2000 ROD's Adaptive Environmental Assessment and Management Program ("adaptive management") allows Trinity River Restoration scientists to monitor data from the river and implement changes to the flow regime with the approval of at least seven (7) members of the Trinity Management Council. The Winter Flow Project is an adaptive management proposal that is now being implemented (at least in part) following a 7-1 favorable vote by the Trinity Management Council.

5. The Winter Flow Project includes a peak synchronization flow period and an elevated baseflow period. The peak synchronization flow period would have occurred between December 15 and February 15, but it was not implemented this year. The elevated baseflow period occurs from February 15 to April 15, separated into two discrete flow actions. The amount of water released during the two actions depends on whether the peak synchronization flow was released previously and the amount of precipitation that occurs that winter. Releases of at least 60,000 acre feet began for the elevated baseflow period on February 15 and last until April 15. An additional release of 20,000 acre feet to 60,000 acre feet of water would also occur on top of the elevated baseflow beginning on March 15, depending on the March water year forecast. Just prior to April 15, the remaining flow volume for that water year (as determined based on the April 1 hydrologic forecast for the Trinity River watershed) minus that needed for baseflow would be shaped and scheduled for release by Restoration Program scientists to seamlessly tie together with flows from the Winter Flow Project.

6. The Winter Flow Project has several intended benefits. If the Winter Flow Project is halted, the river will not benefit from these ameliorative goals:

    a) As detailed by Abel et al. (2022), since the adoption of the 2000 ROD, the annual flows that have been released in the spring artificially reduce water temperatures, and those cooler temperatures are below the optimum ranges for rearing salmonids, thereby reducing the growth of juvenile salmonids. The faster juvenile salmonids can grow, the earlier they can migrate out of the Trinity River and through the lower Klamath River (Thomas Gast and Associates 2021), which will increase their survival by reducing their exposure to warm summer water temperatures and high disease rates. Modeling performed by Abel et al. (2022) showed gains of 5.7 to 19.2 percent in end-of-June weight of juvenile Chinook salmon resulting from modeled implementation of the Winter Flow Project over 16 years in the study. Therefore, discontinuing the Winter Flow Project before April 15 would result in reduced juvenile salmonid growth this spring, resulting in a lower expected survival rate of juvenile salmonids because they would enter the Klamath River later in the summer during periods of elevated disease risks and high-water temperatures.

    b) Release of hatchery coho salmon from Trinity River Hatchery will begin on March 15. As described by NMFS (2020), hatchery releases increase the density of juvenile fish in the river in the weeks following release. The increases in river flow prescribed by the Winter Flow Project are expected to help reduce the density of juveniles in the river following hatchery releases, because more flow release from Lewiston Dam increases the habitat capacity of the river (Abel et al. 2022). If the Winter Flow Project ceases before April 15, competition for food and space between hatchery coho salmon and naturally produced Chinook salmon and coho salmon juveniles is expected to increase, thereby reducing the probability of survival of naturally produced Chinook salmon and coho salmon juveniles.

    c) For steelhead that have yet to spawn, meaning they have yet to deposit eggs, reducing flows before April 15 would increase the probability that they would spawn on top of coho salmon redds, a process called redd superimposition (NMFS 2018). In the absence of the Winter Flow Project, Chinook salmon, coho salmon, and steelhead are limited to spawning areas accessible at the Lewiston Dam winter baseflow level of 300 CFS. The elevated baseflows of the Winter Flow Project have made new spawning areas accessible to spawning salmonids, reducing the likelihood that adult salmonids spawning after the Winter Flow Project began on February 15 will use the exact same location as those that spawned prior to February 15. Redd superimposition disturbs the redd that was made first by crushing the eggs or pushing them out of the redd and into the river, where they become easy prey for predators. This would be expected to reduce the

probability of survival for ESA-listed coho salmon eggs or alevin (yolk-sac fry which are still in gravels). If the Winter Flow Project were discontinued, the probability that redd superimposition will occur in the Trinity River will increase.

d) In the absence of Trinity and Lewiston Dams, which store runoff from precipitation events, the Trinity River would attain flows of 10,000 to 40,000 cubic feet per second (CFS) in the winter months, with variations in those flow levels occurring on a daily or even hourly basis depending on the timing and amount of rain and snow. These high and variable winter flow events are crucial to the health and ecosystems of rivers throughout the western U.S., including the Trinity River (Lytle and Poff 2004; Tonkin et al. 2018; Abel et al. 2022). For example, high winter flows are needed by aquatic insects that ESA-listed coho salmon (and other species such as Chinook salmon) depend on for food. The high flows in the winter create the habitat conditions that lead to the highest insect abundance (Turić et al. 2015; Benke 2001), creating more food for juvenile salmonids and thereby increasing salmonid survival. High winter flows also allow juvenile salmon and steelhead to access productive floodplains and side channels in the winter months, which results in faster growth and higher survival of juvenile salmonids (Jeffres et al. 2020; Katz et al. 2017). The Winter Flow Project is intended to help provide the benefits of a natural river system that dam controlled rivers such as the Trinity River often lack. Discontinuing the Winter Flow Project would result in less habitat area being accessible in the river, less production of aquatic invertebrates that are small enough for salmonid fry to ingest, and less access for salmonid fry to productive floodplain rearing habitat.

e) High mainstem Trinity River flows in the winter help transport sediment that is delivered to the river by tributaries. One of the consequences of keeping flows released from Lewiston Dam low throughout the winter is that sediments, including harmful quantities of silt, have been deposited on the bed of the Trinity River where they have likely reduced the survival of fry within impacted reaches. On a field trip to the Trinity River on January 30, 2023, members of the Restoration Program's Flow Work Group, including County, State, Federal, and Tribal staff, toured one of the most negatively impacted sites, the junction of the Trinity River and Deadwood Creek (Figure 1). The group witnessed salmon nests, known as redds, that were deposited just downstream from the Deadwood Creek tributary junction covered in silt, which is known to suffocate salmonid redds. These negative effects would have been greatly diminished had the planned synchronizing flow event outlined in the Winter Flow Project been performed. As described by Buxton (2021), 40% of salmon redds constructed in the Trinity River in water year 2018 were impacted by fine silt delivered by Deadwood Creek during winter baseflows on the mainstem Trinity River. Silt deposits capped the gravel-bed in the Trinity River and likely had significant negative consequences for salmonid egg incubation upstream of Rush Creek in

2017–2018 (Buxton 2021). Tributary junctions throughout the river become places where large quantities of sand, silt, and rock accumulate in an unnatural quantity and pattern, which can degrade the ecological function of those areas. Recent wildfire scars in the area have exacerbated the problem. The Winter Flow Project will likely ameliorate this negative effect by providing flows that are sufficient to mobilize silt and carry it downstream. If the Winter Flow Project is halted, less silt will be flushed downstream by the Trinity River during rain and snow storms, which will further reduce the survival of salmonid eggs that are currently or will be in redds.

Figure 1. Panel figure of three photographs of the Deadwood Creek tributary delta (2019 top and 2023 bottom), showing sand and silt on the river bed downstream. Top photograph from Buxton (2021).

7. Moreover, now that the Winter Flow Project has commenced and baseflows have been raised, stopping the project now will result in additional harms to the environment above and beyond the aforementioned reduction in the ameliorative effects of the project itself. These additional harms include:

a) Spawning of Steelhead in the Trinity River typically occurs from February to April (Figure 2; USFWS and HVT 1999). Steelhead spawn in nests known as redds in the river, including on the margins of the river where their eggs are protected from large high flow events. If flows were reduced before April 15 after having been elevated since February 15, steelhead redds that are currently in the river margins created by the higher flows would be negatively impacted by the flow reduction because their eggs would desiccate. Desiccation, which results from the removal of water over the redds, would reduce or eliminate the eggs' probability of survival.

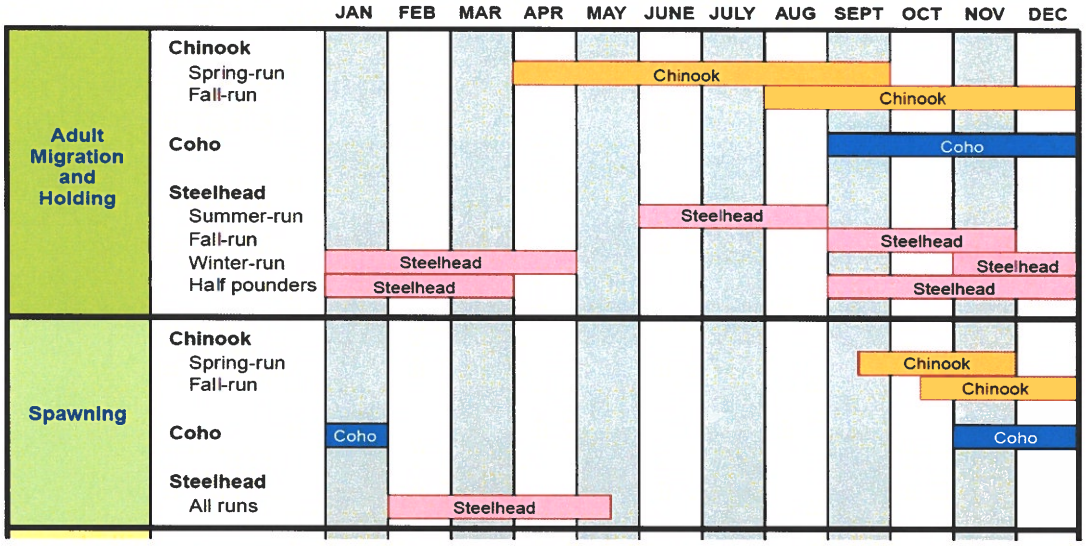


Figure 2. Periodicity of salmonid adult returns and spawning in the Trinity River.

b) Reducing flows released from Lewiston Dam now would be expected to harm juvenile salmon that are currently rearing in the river. Abel et al. (2022) describe how the Winter Flow Project increases the habitat capacity for juvenile Chinook salmon in the Trinity River (page 52, Table 4-6). Generally, increased flows result in more habitat capacity for juvenile salmon in the Trinity River. Because flow affects habitat availability and capacity, which in turn drives density-dependent population dynamics (Perry et al. 2019), reducing flows now would increase the density of fry and juvenile salmon in the remaining habitats beyond the density that would have been expected in the river had the Winter Flow Project not increased flows. The increased density of juvenile salmon would decrease the probability of their survival because a greater number of juvenile salmonids would be competing for reduced amounts of food and habitat.

8. The Winter Flow Project is not unique in the life of Trinity River restoration. There are numerous other examples of the Trinity Management Council implementing the adaptive

management program and the 2000 ROD's Variable Annual Flow Regime component without further National Environmental Policy Act (NEPA) analysis.

a) The Restoration Program has used the data and science generated by Restoration Program staff, partner agencies, and tribes to inform several changes to the Variable Annual Flow Regime component. Figure 3 below shows the Trinity Management Council approved hydrographs (green lines) for a wet water year (2016, left) and critically dry water year (2022, right), along with the corresponding 2000 ROD wet and critically dry exemplar hydrographs (black lines). For 2016, approved changes to the wet water year hydrograph presented in the 2000 ROD include: creating two high flow peaks because data and analyses indicated that one peak for five days is not as effective at moving gravels as multiple peaks; shifting the peak flows approximately two weeks earlier to better match earlier spring snowmelt that has been occurring in the Trinity River basin; and a ramp back to summer baseflow that was less steep to aid in the seedling survival of riparian plant species after it was learned they were being desiccated following steep declines. The 2022 hydrograph changed the peak flow magnitude to 5,000 CFS instead of 1,500 CFS in order to flush fine sediments and scour riparian plants because the previous two years of drought left the river with no flushing flows. The 2022 hydrograph returned to summer baseflows approximately one month earlier than would occur under the ROD exemplar hydrograph to aid the growth of juvenile salmon by allowing water temperatures to warm up naturally.

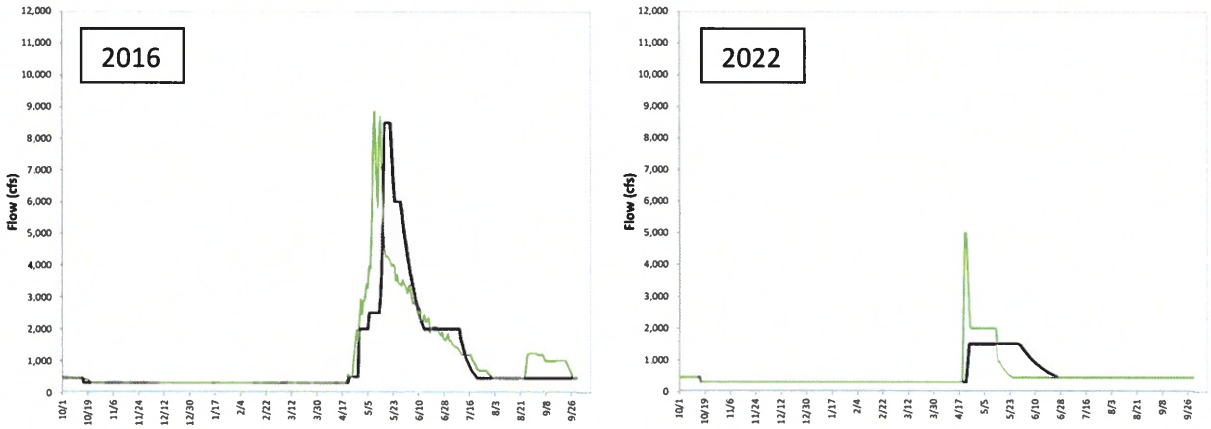
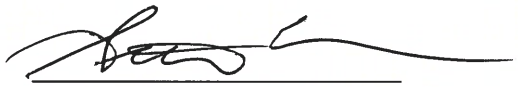


Figure 3. Panel figure showing the Trinity Management Council approved hydrographs for a wet water year (2016, left) and critically dry water year (2022, right). Black lines indicate the hydrographs described in the 2000 ROD, green lines indicate the Trinity Management Council approved changes to the hydrographs.

b) The variable Annual Flow Regime component is only one of six of the ROD components. Based on data collected and analyses from Restoration Program scientists and outside experts, the Trinity Management Council and/or the Restoration Program have also altered the amount of sediment recommended in the Sediment Management Component of the 2000 ROD, and changed the methods used to design sites, and the design of sites for treatment under the Mechanical Channel Rehabilitation Component. These alterations have been made without additional NEPA review.

I declare, under penalty of perjury pursuant to 28 U.S.C. § 1746, that the foregoing is true and correct to the best of my knowledge.

Executed this 27th day of February, 2023 in Humboldt County, California



Seth Naman

References

Abel, C. E., K. De Juilio, K. T. Lindke, S. Naman, and E. E. Thorn. 2022. Trinity River winter flow project. Report for the Trinity River Restoration Program (TRRP). TRRP, Weaverville, California. Available: https://www.trrp.net/library/document?id=2566.

Benke, A.C., 2001. Importance of flood regime to invertebrate habitat in an unregulated river–floodplain ecosystem. Journal of the North American Benthological Society, 20(2), pp.225-240.

Buxton, T. H. 2021. History of fine sediment and its impacts on physical processes and biologic populations in the Trinity River. Presentation provided to the Trinity River Restoration Program (TRRP) Science Symposium on 2021-11-10. TRRP, Weaverville, California. Available: https://www.trrp.net/library/document?id=2520.

Jeffres, C.A., Holmes, E.J., Sommer, T.R. and Katz, J.V., 2020. Detrital food web contributes to aquatic ecosystem productivity and rapid salmon growth in a managed floodplain. PloS one, 15(9), p.e0216019.

Katz, J.V., Jeffres, C., Conrad, J.L., Sommer, T.R., Martinez, J., Brumbaugh, S., Corline, N. and Moyle, P.B., 2017. Floodplain farm fields provide novel rearing habitat for Chinook salmon. PloS one, 12(6), p.e0177409.

Lytle, D.A. and Poff, N.L., 2004. Adaptation to natural flow regimes. Trends in ecology & evolution, 19(2), pp.94-100.

NMFS. 2018. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Response: Artificial propagation of Steelhead and Chinook Salmon at Trinity River Hatchery. WCR2018-9118. NMFS West Coast Region. August 20, 2018. 54 pages.

NMFS. 2020. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Response: 4d Limit for the Trinity River Coho Salmon Hatchery and Genetic Management Plan. NMFS Consultation Number: WCRO-2019-03414. National Marine Fisheries Service, West Coast Region. June 11, 2020. 108 pages.

Perry, R.W., Plumb, J.M., Jones, E.C., Som, N.A., Hardy, T.B., and Hetrick, N.J., 2019, Application of the Stream Salmonid Simulator (S3) to Klamath River fall Chinook salmon (Oncorhynchus tshawytscha), California—Parameterization and calibration: U.S. Geological Survey Open-File Report 2019–1107, 89 p., https://doi.org/10.3133/ofr20191107.

Thomas Gast & Associates. 2021. Analysis and model evaluation of long-term data collected at the Willow Creek outmigrant trap. Report 20190910YTFP for the Trinity River Restoration Program (TRRP). Thomas Gast & Associates Environmental Consultants, Arcata, California. Available: www.trrp.net/library/document?id=2492.

Tonkin, J.D., Merritt, D., Olden, J.D., Reynolds, L.V. and Lytle, D.A., 2018. Flow regime alteration degrades ecological networks in riparian ecosystems. Nature ecology & evolution, 2(1), pp.86-93.

Turić, N., Temunović, M., Radović, A., Vignjević, G., Sudarić Bogojević, M. and Merdić, E., 2015. Flood pulses drive the temporal dynamics of assemblages of aquatic insects (Heteroptera and Coleoptera) in a temperate floodplain. Freshwater Biology, 60(10), pp.2051-2065.

USFWS (U.S. Fish and Wildlife Service) and HVT (Hoopa Valley Tribe). 1999. Trinity River flow evaluation final report. USFWS, Arcata, California and HVT, Hoopa, California. Available: https://www.trrp.net/library/document?id=226.

U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation (USBR), Hoopa Valley Tribe, and Trinity County 2000. Trinity River mainstem fishery restoration final environmental impact statement/environmental impact report [Public Draft and Final]. October, 2000. State Clearinghouse No. 1994123009. USFWS, Sacramento, California. Available: https://www.trrp.net/library/document?id=1238.